## **CLAIMS**

What is claimed is:

A digital image processing method comprising:

providing digital image data of a plurality of colors of an image, wherein the image data comprises a plurality of sets individually comprising mosaic data of one of a plurality of colors at a plurality of pixel locations;

analyzing image data of one of the pixel locations with respect to image data of another of the pixel locations; and

adjusting the image data of the one pixel location responsive to the analyzing, wherein the adjusting comprises adjusting to one of denoise the image data and sharpen the image data.

- 2. The method of claim 1 wherein the analyzing comprises analyzing image data of the one pixel location with respect to image data of a plurality of other pixel locations.
- 3. The method of claim 2 wherein the adjusting comprises adjusting to sharpen the image data of the one pixel location responsive to the analysis of the image data of the one pixel location with respect to image data of one of the other pixel locations and to denoise the image data of the one pixel location responsive to the analysis of the image data of the one pixel location with respect to image data of another of the other pixel locations.
- 1 4. The method of claim 1 wherein the analyzing comprises comparing 2 the image data of the one pixel location with image data of the another pixel 3 location.
  - 5. The method of claim 4 wherein the adjusting comprises adjusting to denoise the image data responsive to the comparing determining a difference of the image data of the one and the another pixel locations to be a within a first set of values and adjusting to sharpen the image data responsive to the

- 5 comparing determining the difference of the image data to be within a second set of values.
- 1 6. The method of claim 4 wherein the adjusting comprises adjusting 2 to denoise the image data responsive to the comparing determining a difference 3 of the image data of the one and the another pixel locations to be within a first 4 set of values and adjusting to sharpen the image data responsive to the 5 comparing determining the difference of the image data to be within a second 6 set of values different than the first set of values.
  - 7. The method of claim 4 wherein the analyzing comprises applying square root operations to the image data prior to the comparing.

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- 8. The method of claim 4 wherein the adjusting comprises adjusting to denoise the image data responsive to the comparing determining a difference of the image data of the one and the another pixel locations to be less than a threshold and adjusting to sharpen the image data responsive to the comparing determining the difference of the image data to be greater than the threshold.
- 1 9. The method of claim 8 wherein the adjusting to sharpen the image 2 data comprises adjusting responsive to the comparing determining a difference 3 of the image data is less than another threshold.
- 1 10. The method of claim 9 wherein at least one of the thresholds 2 comprises a single value.
  - 11. The method of claim 9 wherein at least one of the thresholds comprises a transition period of a plurality of values.
    - 12. The method of claim 8 wherein the adjusting comprises addressing a look-up table responsive to the comparing, and adjusting using values obtained from the look-up table responsive to the addressing and configured to implement the denoising for results of the comparing determining the difference is less than

- the threshold and to implement the sharpening for results of the comparing determining the difference is greater than the threshold.
- 1 13. The method of claim 1 wherein the sets individually comprise 2 image data of no more than a single color.
- 1 14. The method of claim 1 wherein the adjusting comprises adjusting 2 utilizing a robust estimation filter.
- 1 15. The method of claim 1 wherein the adjusting comprises adjusting utilizing a modified bilateral filter without division operations.
- 1 16. The method of claim 1 further comprising demosaicing the sets of 2 the image data after the adjusting to provide composite image data capable of 3 being utilized to provide a representation of the image.
- 1 17. The method of claim 16 wherein the composite image data comprises data of more than one of the colors at individual ones of the pixel locations.
  - 18. A digital image processing method comprising:
- providing digital image data of a plurality of colors of an image, wherein the image data comprises a plurality of sets individually comprising mosaic data of one of a plurality of colors at a plurality of pixel locations;
- filtering the mosaic data of the respective sets using a robust estimation filter; and
- demosaicing the mosaic data of the respective sets after the filtering to provide composite image data capable of being utilized to provide a representation of the image.
- 1 19. The method of claim 18 wherein the filtering comprises filtering using a modified bilateral filter without division operations.

- 20. The method of claim 18 wherein the filtering comprises denoising 2 the mosaic data responsive to determining a difference of mosaic data of one 3 and another pixel locations being less than a threshold and sharpening the mosaic data responsive to determining the difference of the mosaic data being 4 greater than the threshold.
  - The method of claim 20 further comprising applying square root 21. operations to the mosaic data of the one and the another pixel locations, and wherein the determining comprises determining the difference after the applying.

## A digital image device comprising: 22.

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an imaging system configured to provide digital image data of a plurality of colors of an image, wherein the image data comprises a plurality of sets individually comprising mosaic data of one of a plurality of colors at a plurality of pixel locations; and

processing circuitry coupled with the imaging system and configured to access the mosaic data of the plurality of sets, to sharpen at least some of the mosaic data of the sets, and to demosaic the mosaic data after the sharpening to provide composite image data capable of being utilized to provide a representation of the image.

- The device of claim 22 wherein the processing circuitry is configured to sharpen at least some of the mosaic data using a robust 2 3 estimation filter.
- 24. The device of claim 22 wherein the processing circuitry is 1 2 configured to sharpen at least some of the mosaic data using a modified bilateral 3 filter without division operations.
- 25. The device of claim 22 wherein the processing circuitry is 1 2 configured to apply square root operations to the mosaic data to sharpen the at 3 least some mosaic data.

- 1 26. The device of claim 22 wherein the processing circuitry comprises processing circuitry of a digital camera.
  - 27. An article of manufacture comprising:

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- a processor-usable medium comprising processor-usable code configured to cause processing circuitry to:
- access digital image data of a plurality of colors of an image,
  wherein the image data comprises a plurality of sets individually comprising
  mosaic data of one of a plurality of colors at a plurality of pixel locations;
- apply a robust estimation filter to the mosaic data of the respective ones of the sets; and
- g combine the filtered mosaic data to provide composite image data to capable of being utilized to provide a representation of the image.
  - 1 28. The article of claim 27 wherein the processor-usable code is 2 configured to cause the processing circuitry to apply the robust estimation filter 3 comprising a modified bilateral filter without division operations.
  - 1 29. The article of claim 27 wherein the processor-usable code is 2 configured to cause the processing circuitry to apply the robust estimation filter 3 to denoise and to sharpen the mosaic data in a common processing step.
    - 30. The article of claim 27 wherein the processor-usable code is configured to cause the processing circuitry to denoise the mosaic data responsive to a determination of a difference of the mosaic data of one and another of the pixel locations being than a threshold and to sharpen the mosaic data responsive to a determination of the difference of the mosaic data being greater than a threshold.
  - 1 31. The article of claim 30 wherein the processor-usable code is 2 configured to cause the processing circuitry to apply square root operations to 3 the mosaic data of the one and the another pixel locations prior to the 4 determinations.